ABSTRACT OF THE DISCLOSURE

An x-ray imaging system includes an x-ray source for projecting imaging radiation onto a sampled object that is secured by a support member and a detector support assembly having multiple detecting modules distributed in a sparse configuration for detecting imaging radiation that has passed through the object. The x-ray source and the detector support assembly are on opposite sides of the support member. Relative displacement is provided between the object and the imaging radiation. By providing the relative displacements and illuminating the object with pulses of imaging radiation at selected intervals, a time series of successive sub-images corresponding to overlapping regions of the object is captured by each module. Computational algorithms combine the captured sub-images to form a composite three-dimensional description of the sampled object. There are multiple pulses of x-ray illumination for each region of the object, and each pulse irradiates more than one detecting module.

Document ID: 1